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RIGHTS AND LIABILITIES OF DENTISTS AT COMMON LAW.

BY JAS. G. DUNNING, L.L. B., OF THE SPRINGFIELD BAR.

The rights and liabilities of dentists in the practice of their profession are to be determined by the same rules that have been laid down for physicians and surgeons, and business experts in general.

A dentist is obliged in each case to apply such diligence as good dentists, acting under similar circumstances, would apply. The simple question is, did he in the particular case exhibit such skill and diligence as good dentists in such cases are accustomed to exhibit? When a man offers himself to the public as a dentist, the law requires that he be possessed of that reasonable degree of learning and skill which is ordinarily possessed by others of his profession who are in good standing as to qualifications. This rule does not require that he should have the highest skill, or largest experience, or most thorough education, equal to the most eminent of the profession of the whole country, but it *does* require that he should not, when uneducated, ignorant and unfitted, palm himself off as a professional man, well qualified, and go on blindly in the duties of the profession.

But a dentist, qualified within this rule, *may* be guilty of negligence and malpractice. The law requires and implies, as a part of the contract, that when a dentist undertakes professional charge of a patient, he will use reasonable and ordinary care and diligence in the case. The law implies that he agrees to use his best skill and judgment, but not that he shall possess the best skill and the best judgment. There is no doubt of the legal right of a dentist to refuse to take charge of a particular case. When in charge, however, he is liable for any negligence, whether of omission or commission, which produces injury to his patient. But a dentist who is acting gratuitously, is liable only for gross negligence. An inexperienced volunteer, who acts when no expert can be obtained, is liable only for gross negligence. But if, by forcing himself into the case, he thereby excludes a competent dentist, his liability is the same as that of such competent dentist. If the practitioner, however, frankly informs his patient of his want of skill, or the patient in some other way is fully aware of it, the latter cannot complain of the lack of that which he knew did not exist. But no recovery can be had in any case where there has been no injury. The implied liability of a dentist retained to treat any particular case extends no further, in the absence of any special agreement, than that he will indemnify his patient against any injurious consequences resulting from his want of proper degree of skill, care, or diligence in the execution of his employment. And in an action against a dentist for negligence, or malpractice, the plaintiff, if he shows no injury resulting from negligence, or the want of due skill in the defendant, will not be entitled even to nominal damages.

If a patient, refusing to adopt the advice and remedies of his dentist, or to follow his directions in any way, thereby frustrates the latter's endeavors, or if he aggravates the case by his misconduct, he cannot charge to the dentist the consequences due to himself. It is the duty of the patient to coöperate with his dentist; and if he will not, or under the pressure of pain cannot, his neglect is his own misfortune.

The rule has been stated to be that a dentist is bound only to exercise ordinary skill and diligence, the *average* of that possessed by the profession as a body, and not of the thoroughly educated only; that is, that he will satisfy the law's requirement if he possess the "average capacity" of the members of his profession. But the true rule seems to be not what the *average* of the profession would do, but what an intelligent, responsible and respectable member of the profession

would do under the same circumstances. The average skill of the profession, taking in good and bad, young and old, as a mass, is hard to reach; and if we count into the aggregate the young who have had no practice, and the old who have retired from practice, the average would give a standard lower than that which should be required. Nor is this the only reason why the test of the "average capacity" is inadequate. In a city there are many means of professional culture inaccessible to the country. In a city new books and appliances can be promptly purchased, and libraries easily visited. In a city also exists that intercourse with prominent professional men which leads not only to keenness and culture, but to the free interchange of new modes of treatment. In the country such opportunities do not exist. What is therefore due diligence and skill in the country is not due diligence and skill in the city; and what is due diligence and skill in the city is not due diligence and skill in the country. Hence, the question of diligence and skill in each particular case is to be determined, not by inquiring what would be the average diligence of the profession, but what would be the diligence of an honest, intelligent, responsible member of the profession in the position in which the defendant was placed.

The following case is reported in the 39th volume of the Maine Reports: Assumpsit for a full set of artificial teeth for the defendant's wife. The contract was made with the wife with the knowledge and consent of defendant. When put into her mouth, she complained that they felt odd and pained her. The plate was then somewhat filed, but she still complained and declined to pay for them. It was agreed that she might take them away and return them on the following Monday, when she returned them and said she knew she never could wear them. Something further was done to the teeth, but she declined to pay for them and left them, although the plaintiff forbade her doing so, and claimed his pay. There was conflicting evidence as to whether the teeth fitted her mouth. By one it was testified that they were a good piece of work, by another that they were a fair average piece of work, and by a third that they were nothing extra. Among other instructions the jury were told that "if the plaintiff had used all the knowledge and skill to which the art had at that time advanced, that would be all required of him." Verdict was for the defendant. Exceptions were taken to the above instructions by plaintiff's counsel, on the ground that they were misleading to the jury as implying that any less degree of skill would not satisfy the require-

ments of the law, and the full court held the above instruction erroneous as tending to hold the standard of professional requirements too high, and a new trial was ordered. In considering this case, the court said: "The highest degree of skill is not to be expected unless stipulated for; nor can it be reasonably required of all. If a dentist has used all the knowledge and skill to which his art had at the time advanced, no doubt that would be all required of him. But could so much be required of him? If it could, then every professional man would be bound to possess the highest attainments, and to exercise the greatest skill in his profession. Such a requirement would be unreasonable."

A plaintiff in an action against a dentist for malpractice must prove that the defendant assumed the character and undertook to act as a dentist without the education, knowledge and skill which entitled him to act in that capacity, or, he is bound to prove that having such education, knowledge and skill, he neglected to apply them with such care and diligence as in his judgment, properly exercised, the case must have appeared to require; in other words, that he neglected the proper treatment from inattention and carelessness.

EXTRACTS FROM MY NOTE BOOK.

BY GEO. L. PARMELE, M. D., D. M. D.

The French have this proverb: "Lie like a dentist"—originating, no doubt, from the fact that in bygone days dentists when asked if a certain operation would hurt, invariably said no. I think that the greatest point in the successful management of children in the dental chair is to so gain their confidence that when you make an assertion they will not mistake you for one of those awful dentists to whom the French proverb refers. If a child is once convinced that you are its friend, and will give it no unnecessary pain, you can do with it as you like.

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In an article on "Bitterns," in the *American Naturalist, Vol. III., p. 176*, it is stated that in the time of Henry VIII. and Edward VI., of England, the long hind claw of the bittern was a most excellent tooth-pick, for, besides its function as such, it had, if the wisdom of our ancestors was infallible, the highly meritorious property of preserving the teeth from decay.

A Chicago man has a woman's tooth grafted into his jaw, and every time he passes a millinery store that tooth fairly aches to drag him up to the window.—*Newspaper clipping.*

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The mother of one of my patients, eighty years of age, has just cut a dens sapientiæ. A relative of hers, a famous Connecticut poet, now dead, cut the same tooth at about the same age. Another patient tells me, on good authority, that this is also true of one of the early governors of Connecticut.

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Peter the Great was a man of a very inquiring turn of mind, so much so that in addition to those things which one in his position naturally would investigate, he acquired considerable knowledge in his younger days of such subjects as microscopy, anatomy, architecture, etching, etc. On market days it was his custom to mingle with the people, following their life and studying their trades. At one time he took lessons from a travelling dentist, and experimented upon his servants and suit.

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The following, related to me last evening by a clergyman, conveys its own moral. A gentleman whose misfortune it was to wear an artificial denture consisting of a full superior set mounted on gold, was visiting friends in the country. Upon retiring for the night he laid the denture on a chair at his bedside. What was his surprise on arising next morning to discover that his plate was missing and nowhere to be found. Notwithstanding his pride as to personal appearance, he was obliged to appear at breakfast "*sans teeth.*" Upon a thorough search being instituted, they were found behind the fire-board in the chimney where they had, in all probability, been conveyed by a rat.

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Often in old books we get new ideas. The one I quote below is new to me and may be to some others. It is from "*The Art of Preventing the Loss of the Teeth,*" etc., by Joseph Scott, Dentist, London, 1831. "Many persons who object to the operation being performed of grafting or pivoting their decayed teeth, from the fear of pain, or for other reasons, are yet very desirous of appearing to possess good teeth; whilst others, who are sufficiently able to masticate their food with the teeth they possess, exhibit so repulsive an appearance as to induce a similar desire. In order to effect this highly desirable object, I invented the renovator, which is made of the same materials and

possesses all the good qualities of my Artificial Siliceous Pearl Teeth. This renovator is so constructed as to act on the front teeth as a mask does to the face, and gives them all the appearance of health and regularity. It can be slipped on or off in a moment, and adheres perfectly secure without fastening, being made on the principle of precise adaptation to every interstice of the teeth and gums which it embraces. It can be made of any shade of color; is of a delicate appearance, not being thicker than parchment; cannot be distinguished by the most scrutinizing observer from the person's natural teeth," etc.

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Reading of "Ancient American Civilization," in *Scribner's, Vol. V., p. 729*, I found that the ancient Peruvians, judging from the relics found, possessed considerable knowledge of surgery. In this article it says: "It is not uncommon to meet with heads in which the palates, having been destroyed by disease, are replaced with gold ones beautifully executed." I wonder if Dr. Kingsley can tell us if this be true.

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I was present at a meeting of a dental society not long since where, among other business, two members were on trial for breach of the code of ethics. During this trial a reporter of a daily paper was present. Now it seems to me that such trials should be conducted only in the presence of members of the society and be kept as secret as possible, for publishing such proceedings tends to lead the public to look upon the culprit as a martyr, and when one is so considered, it certainly benefits him more than it does those who are supposed to be the cause of his martyrdom. Don't construe this into thinking me opposed to punishment for violation of the code. On the contrary, I desire every society to either live up to or abolish its code of ethics.

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Here is an earlier extract from "*The Birth of Mankinde*, otherwise named *The Woman's Booke*. Set forth in English by *Thomas Raynalde, Phisition*, and by him corrected and augmented—whose contenents yee may reade in the table followyng, but most playnely in the prologue:

Imprinted at London by Richarde Watkins.
Cum Privilegio, 1568—
(Black Letter)

To keepe and preserve the teeth cleane:

First, if they be very yellow and filthie, or blackish, let a Barber

scour, rub and pick them cleane, it shalbe very good to rub them every day with the root of a mallow, and to pick them cleane that no meate remayne and putrifie between the teeth.

Item, take of the small white pibble stones which be found by the water sydes, and beate them in very small powder. Hereof take an ounze, and of masticke one dram, mingle them togeather, and with this powder once in X days rub exactly your teeth, and this shall keepe your teeth fayre and white; but beware yee touch not ne vexe the gummes therewithall.

Item, to stable and steadfast the teeth, and to keep the gummes in good case, it shall be very good every day in the morning to wash well the mouth with red wine.

RUBBER-CORUNDUM DISKS, WHEELS AND POINTS.

BY JOHN G. HARPER, D. D. S., ST. LOUIS.

On January 20, 1880, I read a paper before the St. Louis Dental Society, describing my mode of making separating disks, and as I know of a number of dentists who think these disks are superior to any, I take the trouble to copy from the Missouri Dental Journal, Vol. XII., page 77, and make a few additions.

. . . . . .

I will now proceed to give my method of mixing the materials and forming the different instruments. You will find Whalebone or English black rubber the best, as they are softer and more adhesive, when heated to the proper temperature, than other brands. Corundum powder, No. 80, is a good size to use. . . . The only tools needed are a marble slab and a round bottle. First heat the slab to about 180 degrees F. Place the heated slab upon a table, and spread upon it a small quantity of powdered corundum, say half an ounce; extend over a surface as great as that of the rubber into which you wish to incorporate the powder; cut from the end of a sheet of rubber a strip half an inch wide, and place upon the powder, which is now heated by the slab; roll the mass with the bottle, turning the rubber from time to time, until the area of the rubber is twice as great as the original; double the piece so as to bring the powder into the interior, then roll out until the thickness is about No. 20 of the U. S. gauge plate. This mass will be sufficient to make half a dozen disks of thickness No. 23, U. S. gauge plate, and seven-eighths of an inch in

diameter. The powder should be worked in until the mass is three times the weight of the rubber used.

If you have no marble slab the following method may be resorted to: Heat the rubber the same as in packing a case, first cutting the strips the size just described, and laying half a dozen, more or less, on your heating apparatus. A sheet of tin laid on your table, and the corundum powder spread on it, will take the place of the marble slab. When the rubber is sufficiently heated, take up one strip, place on the powder and quickly roll it two or three times with the round bottle; turn over the strip and roll the same as at first. By this time it will need reheating. Replace in the position from which it was taken, and treat the next piece in similar manner, going through the pieces consecutively about three times. If you are not able to roll the rubber thin enough, it can, at the proper temperature, be stretched to the desired thinness. A little practice will soon make you an expert at mixing the materials.

The mass is ready at this stage for packing. The next thing is to make the proper mould. A permanent mould may be made of brass, as the vulcanized disk can be removed from brass. If iron is used, it is necessary to first line the mould with heavy tin foil. If too thin foil is used, it (the foil) cannot be removed easily. The most simple way is to vulcanize the rubber-corundum in sheets between two pieces of smooth glass, which may be properly packed in a rubber flask, so that in separating a piece will remain in each part. The glasses may be kept the required space apart by placing between them pieces of sheet tin or brass of the same thickness as is desired in the disks. Cut, with a pair of shears, a circular sheet of the prepared rubber, equal in diameter to the disk you wish to make; in the center of this place a circular piece of *fine brass gauze* one-third the diameter of the disk. This and as many more as the space will permit are placed between the glasses in the flask and closed in the usual way. Vulcanize, and let cool gradually. The wire gauze can easily be seen in the vulcanized rubber. In the center of it punch a hole. Lay a model disk, which may be turned from sheet zinc or brass, upon the sheet of corundum-rubber, so that the holes come together, through which pass a mandrel to hold in position, and then cut out the disk with an old pair of shears. Mount the incomplete disk on a parting-nut mandrel, and place in the dental engine or laboratory lathe and turn circular by holding against the rapidly revolving disk a piece of very coarse sand-paper.

Wheels, cones and points of any desired form may be made by first making a model of plaster of Paris on a mandrel and getting an impression in two parts by pressing the model one-half its size into soft plaster contained in the lower half of a rubber flask. After the plaster hardens, trim and soap or varnish, and fill the upper part in the usual manner. As the models have been mounted, the mandrels are not removed, but the whole invested. Open the flask and remove the model; pack with the rubber-corundum, vulcanize as usual. Fine polishing points may be made by using *pulverized pumice stone* instead of corundum.

The disks cut better if run very rapidly and kept wet, using but little pressure. When through using a disk, remove from engine and put in a place of safety, as more disks are broken carelessly when not in use than any other way. Small pencil-like points can be used in many cavities, making better margins than can be secured in any other manner.

SELECTIONS AND ABSTRACTS.

VACANCIES IN THE DENTAL ARCH.

BY W. C. WARDLAW.

A single gap in the dental arch is often the fruitful cause of many evils. Chewing upon the opposite side of the mouth is, perhaps, the most common and greatest evil consequent upon one such vacancy. Where there are several, occasioning a positive difficulty in the proper comminution of the food, by reason of the want of sufficient articulation of masticating surfaces, then dyspepsia, with all its train of ills, is apt to follow. I know of no minor(?) operation in dentistry from which more comfort and utility is to be derived, than the filling of these breaks in the continuity of the arch, and that dentist who devises the simplest and most feasible method of doing this, will be a public benefactor and a humanitarian.

. . . . . .

It certainly is practical to fill the vacancy caused by the loss of one, two, and perhaps three teeth, by securing, through plugging, to the adjoining teeth, a bar of gold, to which has been attached by soldering, a porcelain crown or crowns. The crown can be so nicely

adjusted to the gum as to look well and natural, and if properly done, will be very stable and durable. It is a *nice* operation, and requires care and forethought, as well as skill and taste.

. . . . . .

I take, as my illustration of the crown to be supplied, the left upper first bicuspid. First, give attention to the formation of the cavities, which are to be prepared with more than usual care. They are supposed to be in the approximal surfaces of the canine and second bicuspid, and if no cavity of decay already exists, artificial mortises, or slots, will have to be cut in these positions. The thorough preparation of the cavities, and the taking of an accurate impression in plaster—not wax—of the parts, may be enough for one sitting, for both patient and operator. The entire operation would be too tedious, and this is a good half-way stopping place. Therefore fill the cavities temporarily with gutta-percha, or oxyphosphate, and dismiss the patient. From the impression, obtain a correct plaster model, upon which a large proportion of the work can be done without the necessity of the presence of the patient.

Having next carefully selected a crown—a cuspid crown would likely suit best—of proper shade, and ground to fit the gum nicely, solder on a gold backing. The backing may be prolonged a fourth of an inch, to rest upon the inside of the alveolar ridge. This may readily be done by bending with the pliers, but will be done more satisfactorily, and really easier, by swaging up a small saddle to bestride the ridge, and to which the crown is to be soldered. This increased base not only adds greatly to the stability and permanency of the operation, but assists materially in steadying the crown and in keeping it in proper position during the operation of anchoring the cross-bar.

The next step is to make and attach to the backing of the crown a gold cross-bar of sufficient strength. This should be as long as the cavities in the teeth will allow, and should be so arranged relative to them that it will be supported on both sides, edges and ends, by the gold filling. Having so arranged all this by aid of the model, the two are to be soldered together, and all the crevices to be filled with solder or foil.

When the patient returns, the operation is to be resumed by preparations for keeping the cavities dry whilst they are being filled. For this purpose, I have used the wax ligature, passed twice around the tooth, but I find the rubber-dam better. It is not well to include

both teeth in the same piece of rubber, for it is apt either to fold bunglingly in the way, or to exert a traction upon the crown so as to disturb its close adaptation to the gum. Begin, therefore, with the second bicuspid, and taking a small piece of rubber, cut a hole as near the edge—say one thirty-second of an inch—as will secure immunity from moisture. Use annealed foil, and anchor well the filling at the cervical wall, and build down squarely to where the upper edge of the bar will have to rest. Now comes the particular part of the operation—the filling of the space between the buccal wall of the cavity and the bar in position. For it must be remembered that it cannot be done well, and properly finished up, after the crown is anchored in place. Put the crown in place and fill the space between the bar and the palatine wall of the cavity with quick-setting oxyphospate cement, and when it hardens, remove the crown. Slip in alongside the cement a matrix of wood or gold plate of the thickness of the bar, and continue to build down the filling in the cavity thus formed to the point to which the lower edge of the bar will come. Now carefully trim off, finish up and burnish with files, polishing tape, etc., so much of the filling as is inserted. Pursue the same course and proceed to the same point with the cavity in the canine, and remove the cement fillings. And now for the last time, the crown is to be replaced, when it will be found that the bar will slip easily into place, maintained accurately in position by resting against the partially inserted fillings. The remainder is plain sailing. There will be no trouble in holding the crown in place with one hand and solidly filling the two simple cavities (easy of access from the palatine aspect) left between the bar and the palatine wall of the cavity, and thus the crown is immovably anchored in the two solid fillings surrounding the bar. The dressing off of the gold upon the palatine aspect is all that is left to be done, and is a simple matter, the access being easy.

And now you will hear your patient say, "Doctor, that is so nice—feels so firm and natural. No one can detect it. I would four times rather have it than a plate."

As to the cost of such an operation; some people like to know the "cost" of things. The price should be somewhat "fancy," at least remunerative; for it is a *nice* operation, requiring the judgment, taste and skill not possessed by a second-class operator. A fair price, I think, would be the usual charge for two gold fillings and a single tooth upon a rubber plate.

A little reflection will enable one to modify these manipulations so as to meet the peculiar requirements of particular cases.

In conclusion, I would add that I think there are great possibilities involved in this principle, and I believe that the more it is practiced the greater it will extend the range of dentistry, particularly in the direction of increased masticatory powers.—*Southern Dental Journal.*

KOCH'S DISCOVERY IN TURERCULAR DISEASE.

Dr. Koch, Government Adviser of the Imperial Health Department of Berlin, has lately published a series of results of investigations into the etiology of infective disorders; the last in the form of an address read before the Berlin Physiological Society, on the "Etiology of Tubercular Disease." In this he claims to have discovered *bacilli*, parasites which infest tuberculous patients. Prior to his experiments it has been established beyond doubt that tubercular disease was communicable, but the nature of the contagion was still a mystery. This discovery is one of great importance, for though no practical result can yet be derived from it that can materially alter the treatment of this disease, further investigation will no doubt throw more light on the subject. We give a condensed account of some of his experiments, taken from a letter by Prof. John Tyndall to the *London Daily Times:*

"Permit me to give a further, though still brief and sketchy account of Koch's experiments. Of six guinea-pigs, all in good health, four were inoculated with bacilli derived originally from a human lung, which in fifty-four days had produced five successive generations. Two of the six animals were not infected. In every one of the infected cases, the guinea-pig sickened and lost flesh. After thirty-two days one of them died, and after thirty-five days the remaining five were killed and examined. In the guinea-pig that died, and in the three remaining infected ones, strongly pronounced tubercular disease had set in. Spleen, liver and lungs were found filled with tubercles; while in the two uninfected animals no trace of the disease was observed. In a second experiment, six out of eight guinea-pigs were inoculated with cultivated bacilli, derived originally from the tuberculous lung of a monkey, bred and rebred for ninety-five days, until eight generations had been produced. Every one of these animals was attacked, while the two uninfected guinea-pigs remained perfectly healthy. Similar experiments were made with cats, rabbits, rats, mice and other animals, and, without exception, it was found

that the injection of the parasite into the animal system was followed by decided and, in most cases, virulent tubercular disease.

In the cases thus far mentioned, inoculation has been effected in the abdomen. The place of inoculation was afterward changed to the aqueous humor of the eye. Three rabbits received each a speck of bacillus-culture, derived originally from a human lung affected with pneumonia. Eighty-nine days had been devoted to the culture of the organism. The infected rabbits rapidly lost flesh, and after twenty-five days were killed and examined. The lungs of every one of them were found charged with tubercles. Of three other rabbits, one received an injection of pure blood-serum in the aqueous humor of the eye, while the other two were infected in a similar way with the same serum containing bacilli derived originally from a diseased lung, and subjected to ninety-one days' cultivation. After twenty-eight days the rabbits were killed. The one which had received an injection of pure serum was found perfectly healthy, while the lungs of the two others were found overspread with tubercles."

In the same letter Prof. Tyndall calls attention to the fact that in no other way than by experiments upon animals could this valuable discovery have been made, and regrets that the "noisy fanaticism" of conservatives, by making vivisection punishable in England, has debarred English scientists from making further investigations into this great, vital subject. Dr. Koch has already made himself well known by his investigations into the nature of splenic fever, which were marked by so much thoroughness and skill.—*The Medical Register.*

Stockings with toes have always been used more or less in treating foot troubles, but in England they have lately come into more general use, and are considered a sure preventive of many diseases which make a walker's life wretched. The London Lancet favors such stockings as likely to be comfortable and spare serious trouble to persons who suffer from soft corns between the toes. The Lancet says: They will, moreover, give the foot better play, allowing its phalanges greater freedom of action; and, lastly, a well-fitted digitated sock or stocking will remove a mass of material from the toe of the boot, and, at the same time, secure increased breadth and space for expansion across the base of the toes. The new stockings, supposing them to be well cut and fitted, possess many advantages. Even if the toed stocking should have no other effect than to expel the ugly and unphysiological "French-toed" boot, it would prove a public benefit.

EDITORIAL.

Why, how "tall" you are, *Item of Interest!* We always liked rather to be in the company of tall people than of small ones.

The failure of the recent "Dentistry Bill" to become a law of Massachusetts, by reason of an executive veto, suggested to us the desirability of knowing just what the legal status of the profession is in States having no special legislative enactments. Those who are interested will find in this number a carefully written article on "*The Rights and Liabilities of Dentists at Common Law*," by a member of the Springfield Bar, which is alike applicable to all States, modified only by such *special* laws as any State may have adopted. It is worthy of a careful reading, and *may* come handy for reference.

We learn with sincere regret that Dr. Marshall H. Webb, of Lancaster, Pa., has been suffering with a painful and serious illness for the past twenty weeks, and that he is still confined to his bed, uncertain as to what the result may be. Dr. Webb has greatly endeared himself to the entire profession, not only in the United States but wherever dentistry has felt the influence of these progressive times. That he is now a sufferer by reason of his long-continued, self-sacrificing and earnest devotion to the advancement of the profession, can hardly be doubted; and a knowledge of which fact serves to more sharply pull at the heart-strings and excite the tenderest sympathy of all who know him. There is, and can be, but one wish and prayer, and that is that he may speedily find relief and resume his prominent place among us.

The dental profession will regret to learn that, owing to the pressing duties of his office practice, Dr. L. D. Shepard, of Boston, feels compelled to sever his connection with Harvard College as Professor of Operative Dentistry. We understand that his resignation has already been tendered to take effect at the close of the current year. Dr. Shepard has been identified with the school as adjunct professor and professor ever since the dental department was first instituted in

1867, and a large share of the credit for the good work achieved, and the enviable name won for the Harvard school, rightfully belongs to him. To have so long held one of the most important positions among those who have so successfully labored to establish this school upon a basis that would, by its own merits, command the respect and admiration of the whole dental world, and place it upon an eminence at least second to none, must be a compensation that will to a considerable extent repay the constant devotion and earnest work that Prof. Shepard has so unsparingly given it.

RAMBLINGS AMONG THE JOURNALS.

The *Ohio State Journal* of April contains, as leading articles, two copies from the Illinois State Dental Society report—one on Operative Dentistry, by Dr. Geo. S. Miles, and the other by Dr. C. A. Kitchen, both able articles. The editor of the Ohio Journal "goes for" Dr. Spalding and his article on Rapid Decay, which we, too, published in our April number. Dr. Watts says nitric acid, of course in the nascent state, produces white decay, and he refers to his article on ammonia in the February number. When we first read this article we did not think it necessary to criticise the chemical views of the author, given in this article, because they were partly antiquated; but we have read the article again and find a few statements which should not be allowed to pass unnoticed. This article on ammonia opens with a few general, highly doubtful sentences: "The chief bulk of vegetable bodies is made up of carbon, oxygen and hydrogen; that of animal bodies includes these and also nitrogen." This general statement may stand as it is, but it is fraught with the danger of a sophism, as if in vegetable bodies the nitrogen was not to play an important part. Quite the contrary; without nitrogen there is no vegetable body grown in nature; while the bulk of many animals, like the ascidiæ, consists of as high a percentage of "vegetable" substances as that of any plant. The whole distinction ought to be abandoned by scientific writers. That "putrefaction is the process of decomposition of azotized bodies, and fermentation that of non-azotized substances," is again a general statement without sufficient basis. That the exciting cause of both is oxygen—at least in its free state—is again wrong. When sugar ferments no kind of oxydation takes place; nothing is added; it gives just its weight of alcohol and carbonic acid, hence, no oxygen comes into play. All these general statements of Dr. Watts are fictitious.

"The ordinary state of hydrogen is gaseous, which is not favorable to chemical combinations," is again such a general, doubtful statement. The process of putrefaction never before has been explained in the way it is done in his article, as if oxygen was needed; by no means. Putrefaction goes on in an atmosphere of carbonic acid if the proper organisms get access to the nitrogeneous compounds. Then a chemist and "vital force!" "Molecules discharge their functional duties in obedience to vital force," is a startling sentence. That molecules have "duties" we never knew before; then "in obedience to vital force!" We are glad that they are obedient in these days of general wickedness! But the grandest sentence is the one following: "And die (the molecules) from the effort, after which they are obedient solely to chemical force." (!) That molecules can die is the grandest (?) conception in chemistry we ever met with. Do many believe that? Dr. Watts seems to think that it is the ammonia in growing girls that prompts their strange habits of drinking vinegar. Now, as he says, page 70: "Bearing in mind that ammonia is the result of putrefaction of dead or effete nitrogeneous tissue," we have to suppose in the *growing* girl more dead nitrogeneous tissue than in the full-grown woman. How is it possible that during the period of growing the dead tissue can be more abundant than during the period of full development? The ammonia theory seems to us as faulty as any theory can be. Nitrogeneous tissue in contact with oxygen, nitrogen, or in fact any gas *free from certain organisms*, may they be called bacteria, or vibriones, or anything else, does not decompose into ammonia, at least, not at temperatures lower than 120 degrees Fahrenheit. The chief azotized decomposition produced of nitrogeneous substances, in contact with insufficient absorbed oxygen in the body, is urea, not ammonia. To suppose that the urea has at one time been cyanate of ammonia, and that this is transformed into urea, would rather complicate than simplify the theory, because many conditions are lacking under which we know cyanate of ammonia to be formed and transformed into urea. The amount of nitrogen converted into ammonia in the body is so very small that, in spite of the alkalicity of the blood, which would favor its elimination, many observers have been unable to measure its quantity in breath; further, the amount of ammonia in fresh urine is immeasurably small when compared with the other azotized constituents of urine; then, albuminous substances in the body do not undergo ammoniacal decomposition unless certain lower organisms are present, or already decomposing albumen is brought

in contact with it; furthermore, ammonia can be breathed with impunity, in quantities many hundred times larger than there is in the breath under any condition, except bronchiectasis, without any constitutional effect at all. Then, when ammonia salts are fed to animals, or given, as it used to be very general, in cases of bronchitis, but a small amount appears in the urine or breath; the greater part disappears, probably by forming bile compounds. Yet the blood is alkaline, due to carbonate of soda, and would set free ammonia very easily at the temperature of the blood. Therefore, to consider ammonia as a source of great trouble in the body, does not seem to us warranted by anything we know about this compound. After all, Dr. Spalding's theories, or rather suggestions, look to us far more plausible than Dr. Watts' ammonia theory.

Dental Office and Laboratory: It appears as its fifth volume, published by Johnson & Lund, 620 Race street, Philadelphia. It is a quarterly, with a good deal of advertising. The first page of the January, 1882, number contains a report of the meeting of the Pennsylvania Odontological Society, in November, 1881. Watts' Crystal Gold was the subject of the evening, and was spoken of very highly by all who had used it. A second long paper, by W. S. Bonwill, D. D. S., on the Salvation of the Human Teeth: How shall it be Done? speaks of the "capillary tube" as pretty nigh essential for decay. The theory of this "capillary tube" seems to us defective, because we know many instances with perfectly separate teeth without that capillary tube where proximal cavities exist more abundantly; besides, decay occurs in the upper jaw, where the capillary tube does not come into play. Does such artificial grinding out of peculiar spaces between the teeth really save them any more, or does it only save them indirectly by allowing the filling to be put into the proximal cavities better and tighter?

The *New England Medical Monthly* of April, 1882, is so full of excellent reading matter that we hardly know where to commence commenting. The first communication is by William A. Hammond, M. D., the celebrated New York doctor of nervous and mental diseases, on Incontinence of Urine as a Preätaxic Sign of Locomotor Ataxia. He cites a very interesting case where this incontinence of urine existed a long time without the patellar tendon reflex showing any sign of alteration; later, this symptom supervened. Dr. S. T. Delamater, of Bridgeport, Conn., publishes an account of removal of scirrhus under the influence of ether, followed by death through hem-

orrhage from the lungs. Can this death be attributed to ether? The young man who died, in this case, had suffered from hemorrhage of the lungs for weeks previous, but the parents had kept this fact secret, fearing the doctor would not perform the operation. (!) Who was to blame?

Some bad effects following the use of iodoform are mentioned. In one case it had been used in an operation of the elbow joint, where about one-quarter of a pound was packed into the wound. The symptoms were first excitement and deliriousness, afterwards a remarkable indifference, the patient staying in bed, with his eyes wide open—in fact, with most of the appearances of tubercular meningitis. He died on the fifth day after the operation in deep coma; no anomaly was found on post-mortem; removal of the dressing failed to give any relief. The amount of urine was diminished, but it contained great quantities of iodides.

One of the brightest dental monthlies is doubtless the *Missouri Dental Journal*—not the least so its number of April, 1882. The first article is on the Characteristics of Saliva in Syphilitics, by Dr. A. W. Harlan, of Chicago. He urges every doctor, and chiefly dentist, to be exceedingly careful with all their instruments. Three and one-half per cent. of the cases of syphilis appear first in the mouths of the infected persons. That "lobing of the tongue in syphilis is generally due to mercury," and not to syphilis, as Dr. Harlan writes it, is, we are forced to think, to be ascribed to the mercurophoby, of which they seem to suffer considerably "out West." The treatment shows the same slight mental indisposition; the whole local treatment of syphilis is not only well-nigh worthless, but even dangerous, because it retards the only thing to be done—to give the patient a good sound treatment with mercury or iodides; but we know, doctor, that about mercury the best men disagree.

In its Foreign Department the *Journal* gives two very interesting articles from the *Deutsche Vierteljahresschrift*, one on a half-liquid root-filling, the other on iodoform in teeth.

From the *Scientific American* a report is copied about experiments made by Berlin chemists, who carefully examined the volatility of mercury when combined with other metals. They find that gold, silver, copper, bismuth, lead, tin, zinc, and cadmium, lose their mercury entirely, or nearly so, at or under the boiling point of mercury; while only the amalgams with sodium and potassium retain their mercury with a certain persistency, which indicates chemical combination.

These experiments are somewhat in variance with those of others, also quite good chemists, who found that platinum and silver retain mercury, at least small quantities of it, at temperatures of 700–800 degrees C., or 1300 F. Who is right, and where lies the discrepancy? But fortunately the temperature of the mouth does not approach so very much the boiling point of mercury (about 670 degrees F.), that the danger of mercurial poisoning is greatly increased since those experiments. This for Dr. Talbot and his roaches; he might otherwise right away draw the consequences, that, because mercury boils at 670 degrees F., it is dangerous to have your neighbor wear an amalgam; for what a powerful dilution of mercury vapor would there be from the breath of this neighbor into the surrounding air, and from thence into our system; a most powerful decillionth dilution!

Missouri Dental Journal of May, 1882. The first article is: What is Facial Neuralgia? by Parsons Shaw, D. D. S., Manchester, England. The article is based on the case of a patient who died from too many doctors. It was a great abscess of the antrum, which the dentist had diagnosticated rightly, but the doctors, who always "knew all about it," made out quite a beautiful case of Bright's disease, gout, neuralgia, etc., while it was nothing but pyæmia, caused by absorption of pus from the antrum. The case is very illustrative as showing that the service of a dental specialist in facial neuralgia is in many cases of more service than that of a doctor, who is "*dignus entrare in hoc docto corpore*," as Moliére berates the physicians of his time with ridiculously bad Latin.

Dental Hygiene is the next article, by Dr. D. P. Richards, of Elgin, Ill. Every sentence forms a paragraph. Some of the sentences are quite good, but we must heartily disagree with what is said about acids in the mouth. Dr. Richards says: "The chemical, or acid theory, is now almost universally accepted by our profession as a directly exciting cause of decay." In spite of that universality (?) of acceptance to the acid theory, we dare to consider it most beautifully faulty—just in this number we give somewhat our own views; they may be very wrong, but they fit remarkably well to the chemical, microscopical and physiological discoveries of the last ten years. The great effect of tooth-brushing may be doubted from the fact that negroes in Africa, Esquimaux in the North, and animals of almost any kind, have excellent teeth, yet the trade in tooth-brushes with these beings is said to be quite small. Cleanliness may do something, and a great deal, but not all; far better than any tooth-brush is healthy parents, with fine teeth. A very lengthy discussion followed.

The *Dental Luminary* is the title of a rose-colored quarterly issued at Macon, Georgia. It is an advertising sheet, but, to be fair, it contains many able articles. Its April number of 1882 opens with a paper by G. W. Rembert, D. D. S., Natchez, Miss., on Operative Dentistry. He adopts the "new departure," as he calls the reaction against gold, as the only allowable filling of a tooth. His ideas are very good and practical. The proceedings of the Mississippi State Dental Association are reported. The chief subject of discussion seems to have been the consideration of a bill for the Legislature of the State to regulate dentistry. The quarterly contains an article on Operative Dentistry, by A. H. Hilzhelm, of Jackson, Miss., and a very able article by Duff Post, Tampa, Florida, on Conservatism in Dentistry.

Another rose-colored dental quarterly is the *Dental Record*, published at Baltimore, Maryland. Its April number of 1882 contains a good popular article on sleep.

The *Dental Cosmos* of May, 1882, contains an answer by Dr. Wilbur F. Litch to our esteemed writer of the Ramblings. Now, we know him pretty well and are sure that he knows well what he says. We therefore thought it proper that he would answer strongly, but his answer disappoints our expectations of a literary circus. He says: "First, the subject is altogether too special to be of much interest to the dental profession at large; certainly not one dentist in one hundred will see the exact point of the dispute. I, therefore, rather would have the appearance created of being crushed or otherwise annihilated than of having our Journal dull or abstruse; perhaps I should not have touched at all this theoretical point. I maintain both statements, with the modification that in the first passage I should have explained a little more explicitly the decomposition of the tooth by the hydriodic acid. As to the second passage, I beg leave to consider that the pulp-chamber is dark, and that one very essential point for the decomposition of HI is light. Then Dr. Litch should not crush me so badly, with general book statements which may be useful for one who studies for the first time on the school-bench something about iodine, but which in their general applicability are not applicable to special cases. I know those statements by heart, I might say, since 1864, but they never have helped me in any special case. The only way to test a special case is experiment, and a proper explanation of the experiment. These general statements are like: 'Gold is found in Africa.' It is true in general, yet I would not ad-

vise Dr. Litch to land at Boriboola-Gha with a big box and to expect to have it filled within the first hour with 'gold found in Africa.' We do not deny the value of the application of iodine, yet the theory of Dr. W. Litch is erroneous in his practical special application, not because it contains any statements that are not true in a general way. I published in the same number a long article on creasote and carbolic acid. I repeat that creasote is only an impure, commercial article, while carbolic acid is a distinct chemical compound always present in commercial creasote. Dr. Litch seems to have entirely misunderstood my position because he supposes me to imply that creasote and carbolic acid are indentical. Please, Doctor, to read that article on page 97 of our Journal!" Thus far our rambling man. We need not add any commentary.

Who would like to criticise that fine book, "Quiz Questions," by Dr. J. F. Flagg, of Philadelphia? Though the job tickles us "awfully," we would like to have somebody else do it. Did he really say such things? In the first place, we would like to know if the book represents approximately anything like the views of the excellent professor. We hardly can believe it; there are more empty words in that book than we ever read in any treatise on Swedenborgianism or in an art criticism. Is the book a serious publication or a good practical joke? If serious, nothing better can be done than sound "pummeling;" but we hope it is nothing but a joke of a dental wag!

There are people who suppose a chemist exceedingly unpractical; they think such a chemist knows lots of things, but does not know how to make any use of them. "Let us try and get out of him something for *me!*" With such an idea, a Yankee not very long ago called on us. "You are a chemist, are you not?" "Yes, sir, I believe I am." "You have a nice laboratory; those are fine scales, I suppose. By the way, could you make me a solution of coke—you know, gas-coke; I would like a small bottle, with a recipe how to make it." Poor fellow! He thought we were innocence, while "it was him." We were sorry to tell him that all his money could not pay us for that small bottle full of this solution. He only thought it might give a mighty good varnish for all kind of things. So we thought, too, and a good deal more.

How singular it is that scientists, particularly those engaged or interested in histological research, should make dogmatic statements in regard to subjects not clearly understood, or sufficiently comprehended to warrant any opinion in the direction they may be given. We have noticed this peculiarity in those who deplored by word and pen the same characteristic in others, and yet never considered the trait in themselves as at all inconsistent. We are reminded of this by the recent researches into the histology of the dental pulp, by Dr. Bödecker, wherein the blood vessels are found to be arterial and veinous in character—no one ever doubting a capillary system present in the pulp. A few months ago we were examining dental pulp tissue, and prepared it in different ways for examination. One method was by hardening it in one per cent. aqueous solution of chromic acid, separated from the dentine; another method was in the same solution in situ with dentine; still another method was to take the fresh pulp from the extracted tooth, immediately stain with carmine and harden in strongest glycerine, to which was added one per cent. acetic acid—the pulps left in this from three to six months, and sections obtained with a *very keen razor*. All of these specimens showed blood-vessels; longitudinal sections showing *symmetrical* arrangement in outline and transverse sections plainly showing the *tubular* characteristic of *double* or *triple* coated vessels. Well, we had heard from certain quarters repeated assertions that no such vessels were to be found in the dental pulp. So we wrote to headquarters for affirmation of the statement and it came "dogmatically that neither an artery nor vein were to be found in a normal human dental pulp." We were not convinced, because a study of true capillaries from photographs by that earnest and honest U. S. army surgeon, Dr. J. J Woodward, revealed to us that we had not called attention to these results. But the truth will survive, and lovers of it cannot be too careful of their statements upon subjects that are not well apprehended.

TOOTHACHE.—Dr. Spörer recommends that three to four crystals of hydrate chloral should be inserted into the hollow and painful tooth, the chloral being allowed to dissolve. He has treated thirty-eight cases successfully in this way, and has also obtained good results in several cases of hemicrania resulting from carious teeth.—*Chemists' and Druggists' Bulletin.*

OPERATING TABLE AND LABORATORY.

MR. EDITOR:

Dear Sir—While I do not quite agree in all you say in regard to rubber and celluloid plates as compared with gold, platina, or silver, I fully agree with you that the above-named metals would be more conducive to the health of the mouth if the plates from such metals were well made; but, as a rule, they are not. The greatest advantage to be gained from the use of metal plates over rubber or celluloid is coolness to all parts of the mouth covered by the plate; but I cannot see that a rubber plate, lined with any of the metals, would possess any advantage over an all rubber plate as far as coolness is concerned, or conductivity, for the reason that the rubber would cover the outer surface and prevent the real object for which the all metal plate is recommended.

The cleanest, coolest and most desirable plate I have seen is an all gold base plate, with the teeth attached to the plate with the best quality of rubber, using no more rubber than is necessary for strength. The lining of a rubber or celluloid plate on the gum surface would not, from my observation, add much to the *sweetness* of a plate kept in a *filthy condition*. I have examined mouths where rubber plates have been used for fifteen or more years, and found them looking as well and healthy as if a gold plate had been used; but the plate was kept *clean*, and was *removed* from the mouth every night on retiring, and placed in water. If you will insist on your patients doing this, you will in a great measure avoid the "hot, peppery condition of mouths"—a condition which I have seen where all gold plates were used, but kept in a filthy condition, and worn constantly, night and day. So it is not best to lay all the cussedness at the door of rubber or celluloid. If you wish to try the lining of a rubber plate with platina. you can, I think, obtain the plate of Mr. H. M. Rayner, 25 Bond street, New York. Just how thick it is used, I am not able to say, as I have never used any; but, from my examination of the case referred to, should say that No. 35 or 36 plate gauge was about the thickness. It should be thin enough to burnish on the plaster model in nearly the same manner as with tin foil, and the surface that is to adhere to the rubber is in some way made rough, so that it will be firmly attached to it.

You understand that since the introduction of the rubber dam as

an assistant in operations on the teeth, most new dentists, and not a few of the old, are in the habit of using it on all occasions—no matter, much, how slight the operation—*they make it a hobby*, and often to the inconvenience of their patients. Now I wish to ask if you have ever tried using *small* napkins properly folded and held in position by a suitable rubber dam clamp, as a means of keeping your work dry in ordinary operations? If not, it will pay you to give it a little thought. E.

In reply to the above we would say, that it is of the first importance in the construction of dentures to select for the base plate a material with the least possible objectionable features, and afterward to construct a denture which will manifest artistic skill. When we speak of *gold* in this connection, we do not refer to 14*k*, or 16*k*, but to gold of a degree of fineness consistent for the purpose—probably not less in any case than 20*k*. Surely we ought not to expect very good results from plates which are not what they purport to be; and, without doubt, plates have been made and called gold, in which silver and copper were the chief elements. However, if this *alloy* is better for the mouth, let us prove the same and act accordingly. So far as cleanliness is concerned, it would hardly seem possible that a plate so readily tarnishing as a 16*k* proves to be, could as easily be kept free from extraneous matter as one of greater purity.

If as a profession we thought less of our own ease, and strove more earnestly to influence our patients to have that done for them which would be for their *permanent* good, we might after all find more comfort, and certainly we would have a clean conscience to cheer us on the way.

Is it not a fact that our desire for ease and the securing of an office boy (under the name of "student," but virtually to learn nothing but to keep the office clean and finish up a rubber or celluloid plate) has wrought us great evil? Is it not to this condition, and nothing else, that we, to-day, see so many young men who prefer to be "cheap Johns" in *rubber* and *celluloid*, rather than to be at the necessary expense and time to become expert *plate* workers. No dentist is fit to employ a student who is not competent and willing to do all he can to make that student in time an honor to the profession; and just so long as "students" are made to do dirty work and be taught nothing, we shall pray for legislative enactments to drive out of our ranks—whom? Why, men that we have *educated* (*?*).

We venture to say that no young man who is worthy to be accepted as a student, and is looked after for three years as a student should be, will ever disgrace himself or his preceptor in this manner.

We rejoice that at the present time so much thought is being given to the influence of dental plates on the local parts as well as on the general health, and we trust that the next twenty-five years may see—what the same length of time in the past has not seen—some improvement in this department of dentistry.

INJURIOUS EFFECT OF VULCANIZED RUBBER.

Among the objectionable features in the use of vulcanized rubber in the mouth, one of the most objectionable is the least referred to, namely, the *constant absorption of bony structure* resulting therefrom. It cannot be that this effect is overlooked by dentists generally. Can it be that it is ignored for prudential reasons? Doubtless a majority of those who commenced practice since the introduction of rubber are not sufficiently familiar with the use of metal plates to have noticed the difference in their effect. Nevertheless, it is true that *vulcanized rubber* (and I think *celluloid* too) *is producing incalculable injury to the mouths of those who wear it.*

Thirty-two years' experience, exclusively in mechanical dentistry, has given me ample opportunity to satisfy myself as to the correctness of this statement. The case is plain and can be readily understood by the patient, and instead of universal recommendation of this material for permanent work, a statement of its nature should be made so that the patient can have a choice in the matter, and not be led to think that it is not only a good material, but really the best for artificial dentures. These vegetable bases are *non-conductors of heat,* and it is to the undue retention of heat in the mucous membrane, combined with pressure, that the absorbents are unduly stimulated, resulting in a constant loss of bony tissue. Now for the proof of this assertion, I have never seen a mouth where a rubber plate had been worn for five years and upward but there was manifestly an undue absorption of bone—in the upper jaw, to such an extent, that often there is nothing left but a flabby ridge, and in the lower jaw very often a total disappearance of ridge, and sometimes a depression.

I do not deny that *sometimes* there is undue absorption when wearing metal plates, but those are the *exceptions,* and not the *rule* as in the other case, and arising generally from undue pressure, long con-

tinued at one point or to some peculiar idiosyncrasy or constitutional taint. This fact was emphasized in my own mind more fully upon a recent visit to Boston, where I saw various mouths wearing plates of gold and continuous-gum, which I made 22 to 24 years ago. In every instance, lower as well as upper, the gums showed little additional absorption, and were hard and healthy. I am constantly investigating mouths for the purpose of witnessing the relative effects of rubber and metal plates, and am more and more impressed with the great injury being done to mouths in this way. And it is really a serious matter to the individuals who are doomed to wear artificial teeth the rest of their lives, for they cannot fail to appreciate the fact that the better and more permanent the condition of the gums, the better will they be enabled to successfully and comfortably use their teeth. And so, as I have said, let patients know the real facts in the case, and then if they choose the cheap base, *base as it is*, the worse is their own.—L. P. HASKELL, Chicago, Ill.

However many evils may have resulted from the use of celluloid plates, we can think of it in one regard, at least, with gratitude and that is, that through this medium we were educated to the use of plain teeth, which may be made to look wonderfully more life-like than the commonly used and undesirable block teeth. Of course, if the base plate is to be of either red or black rubber, there must be a gum either of celluloid or pink rubber. The last, if properly constructed and bleached in alcohol in the sun for two or three hours, is quite satisfactory. The teeth must, however, be so arranged that but little if any more than the *margins* of the gum be shown. To produce the above style of plate, two vulcanizings are usually employed, and my object in writing this article is to tell how it may be done with one.

In waxing up the case, secure precisely the contour desired when done, so that no great amount of scraping will be required. The case is then placed in the flask in the usual way. When open, and previous to packing the rubber, cut waste-gates on the *palatal portion only* (*absolutely no other*). In packing, first place a narrow strip of rubber well down below the pins all the way around, then cut a strip of the pink rubber for the gum of a width sufficient to reach from the pins to the height desired for the gum. (If the wax was very thick, two thicknesses may be used.) Next cut a strip of the common

rubber wide enough to cover the pink (if necessary it may be stretched while warm, so as to be quite thin), and lay smoothly over the same, and finish the packing in the usual way.

In bringing the sections together be sure that the anterior portion closes first, or failure will result from the pink rubber being forced out and the other coming through to the surface.

In swaging gold and silver plates, there is many times a film from the dies left on the surface. If the plate be annealed without its removal, it is burned into the plate, causing roughness and brittleness. The plate should be smeared with oil previous to placing in the dies, and each time before annealing, wiped, and then placed in a dish of muriatic acid for a minute or two, which will entirely remove the film. After the annealing, it may also be placed for a moment in the same acid, which will remove all discoloration and beautifully bring out its true color.

SOCIETIES.

CONNECTICUT VALLEY DENTAL CLUB MEETING, APRIL 8, 1882.*

Subject for Discussion—CARIES.

PROF. CHAS. MAYR: "Are we able to distinguish exactly several kinds of caries, or is there but one kind? This question is of very great importance. Is there a physiological caries? I do not use the word "pathological" at all, because physiological covers it completely, and the distinction between physiological and pathological is only one of that great number of vague anthropocentric words. Or is there none but a septic caries? By physiological caries I mean this: Caries solely due to chemical changes of the protoplasm and connective tissue of the tooth, and not due to the presence of certain lower organisms; not due to the presence of certain simple chemical acids, like nitric, hydrochloric or sulphuric acid. Perhaps it will be good to define this kind of caries better still. The existence of a tooth is the resultant between the outer forces working to destroy it, and the inner forces, active in its preservation. The tooth will be destroyed if either

*These Club-meetings were held almost every week during two years, and were of a high scientific interest, though the number of participants was relatively small.

the outer forces become too strong relatively to the inner forces, or if the inner forces become too weak. The first would be the case, if persons living in chemical factories inhaled acid vapors, etc., which dissolve the tooth; but in this case, as the destruction of the tooth is due to simpler forces than in the case of destruction from within, we have no caries; hence, we may establish it a fact that simple chemical outer forces, even if abnormally strong, will not produce caries; the tooth will simply wear away, but the bioplasson of the remaining tooth will be just as strong, and remain as healthy as it was before the destruction of a part of the tooth, only its forces of supplying material could not keep up with the greater supply of destructive agents from without. I, therefore, consider impossible any decay produced by simple outer forces of acids and alkalis, and consider decay always associated with a weakening of the inner, resisting forces. The question coming up this evening is now this: Do there exist two kinds of such decay—the one due to nothing but a 'dying' of the bioplasson-fibrils in certain portions of the teeth, this dying being produced by imperfect nutrition from within; the remaining tooth substance, that is, the lime-salts, filled with unnourished connective tissue and dead bioplasson-fibrils would then undergo the process of slow disintegration from without by air, water, etc., without the presence of lower organisms or the organisms only coming into it as an addition:—or does there exist no such kind of decay without lower organisms from the start? Dentists distinguish a white, soft decay, and a common, black and putrid decay. Is the latter the one produced by the lower organisms, and the other one produced by physiological actions, or is this distinction merely accidental, the one being younger and in a mouth with less impurities, the other being old white decay? Or is it possible that first the one kind, say physiological decay, may exist, and afterwards in the spot organisms, bacteria and termones may settle as in a favorable place? About the second kind of decay, the septic, there can be no longer any doubt, with our present knowledge, that it is the most common, and that in every old decay, at least, the chief faction maintaining and extending the decay is contributed by lower organisms. The question is quite important, and not being familiar enough with many cases, I think that practitioners present might give their opinion as to the facts in this question."

DR. F. SEARLE: "Is there not always a small crevice or spot where food collects and cannot be removed, and where fermentation starts the decay and dissolves the lime-salts?"

PROF. MAYR: "If this were the case, we never would see decay started on surfaces which are always kept clear from accumulations of food, like the labial surfaces of incisors and cuspids, but decay starts there in the middle of the surface, while points between the teeth remain free from it. I myself know a case of a gentleman who kept his teeth most scrupulously clean, was under the constant care of a dentist and, during the space of less than four weeks, at least a dozen small cavities had developed—not between the teeth, but mostly on the labial surfaces of his incisors, and on the crowns of his molars. They were very small, white spots at first, but extending considerably in all directions. In this case the food-theory will not be adequate to account for the most unequal distribution of the cavities almost in direct opposition to the food-theory. I do not doubt that the food-theory accounts for most of the common decay between the teeth, at least as one of the factors, but it is inadequate to account for such cases which probably occur with every practitioner. That is precisely the point I wish to come to; if there is such a kind of decay, a dying from within, rather than a being killed from without."

DR. ROSS: "I have met with such cases and accept this view, that there are two kinds of decay. I have found that the most carefully prepared fresh litmus paper was not reacted upon by application to the carious surface of teeth."

DR. SEARLE: "I think we err in taking litmus in testing. If an acid does the mischief, it is in the recesses of the cavities; that is, I may take some vinegar or sour wine, the food becomes saturated with the excess of acid, it is lodged between the teeth and there starts the mischief."

DR. STOCKWELL: "It is in decalcified tissue that you work when you test with litmus, until you come to the border line of diseased and healthy tissue."

DR. SEARLE: "You never can get the litmus within the softened dentine."

DR. STOCKWELL: "Where diseased tissue meets the healthy, you would not get an acid."

DR. SEARLE: "Certainly, it is the decalcified tissue which contains all the agent that does the destruction. There is lime in a healthy tooth; there is acid in the decalcified tissue; the two combine at the surface of the healthy dentine, and there being an excess of acid, it takes away more and more, and thus works by degrees. It certainly is brought in from without."

DR. ROSS: "Outside the mass is neutral, against the healthy tissue —an excess of carbonic acid or neutral. All the acid would be between two neutral layers. The decomposition and formation of acids do not play a great part in the decay of teeth."

DR. STOCKWELL: "That is the germ theory."

DR. SEARLE: "I have heard the opinion that the product of decalcification furnishes the material for new decalcification."

PROF. MAYR: "That may be by furnishing bacteria."

DR. MORGAN: "About decay, I believe everything is a cause. I believe all the theories from the beginning to the end, and I believe that teeth decay like mischief, but I fully believe that the very same influences that act in the system outside, act in the tooth. At the same time when you get an abnormal condition of the nerve fibrils in the tooth, the whole system is in a condition to promote outside morbid influences on teeth, saliva and mucus of the mouth; and I think that the whole system is deranged, so that you do not only get a weakened tooth itself, but you get an increase of external unfavorable conditions. There are a great many cases in which I cannot explain decay otherwise than by the chemical theory, although I have seen a great many mouths where there are all the external causes for decay, where the teeth are not cared for at all; it would seem that all the favorable conditions for simple chemical influences are present in these mouths, but they are apparently unable to overcome the forces within."

DR. FONES (Bridgeport, Ct.): "If the chemical theory was true, I should think that persons in acid works would suffer most from decay. Such patients often come in my office; my assistant and I have examined their teeth very closely; they are dissolved where the breath would strike them, but they show no decay."

DR. SEARLE: "I would ask why dentine should not resist chemical action better than enamel, being better supplied with nerve force?"

DR. MORGAN: "First, chemical action commences, and septic action then comes in to finish the work."

PROF. MAYR: "About the septical theory and its principles there is no longer ignorance among us. We all may consider the facts as settled. But why does not healthy tissue become attacked like diseased tissue? To explain the fact, we have again to go back to the simpler forms of bioplasson, to amœbæ. Amœbæ may live in water containing bacteria; but why? Simply because they eat them up; or, to express it more scientifically, the bioplasson of the

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bacterium becomes a part of the bioplasson of the amœba—the latter being in excess and a more stable compound. The same will happen with a tooth; bacteria may enter healthy enamel; their number, from the great density and the closeness of the network of the enamel, is only small at one time, and the fibrils within, being on guard, so to say, do nothing more or less than dispose of the entering bacteria by way of assimilation. Thus, as long time as the fibrils prove stronger, the bacteria will not gain entrance; but let the fibrils become weakened and they will crowd in. The danger of a part of the enamel being taken away lies in the fact that the dentine, being provided with much wider canals, the bacteria may enter in much larger number and thus overpower the fibrils of the dentine. The fight is long and slow, but the dental fibrils never will be able to recapture lost positions. To speak figuratively: The whole "life" of the tooth, after it is once formed, is not one of active growth but one of conservation; its bioplasson may, therefore, well defend the parts of the fortress not yet taken, but it will never advance, or only in very rare cases. The supply of bacteria is very great; after every meal we harbor a certain number. They are everywhere, and the weak spot will surely find its attacking bacteria, which have the other dangerous quality, very different from human soldiers, to grow more numerous by themselves; thousands are slain every day, but let them get in a favorable spot and thousands rise up in shortest time. The bacteria try to intrude into the healthy membranes of the mouth just as much as in teeth, but there the chances are very small and only in diseases they enter; we see diphtheritic membranes swarm with them and their offspring; the struggle for life in teeth is not less violent than it is in outer life."

Dr. Ross: "If the septic theory of decay is true it must be that the living matter, the fibrillæ are unequally nourished, weak and atrophied, in portions of the tooth structure, particularly beneath proximating surfaces; just where we would naturally look for greater resisting force to attacks from without. Sections of children's carious, deciduous teeth show filaments of fungi in and bordering the cavity. Have examined the soft, light-colored deposits close to the gum border upon the teeth of a man who never brushed his teeth, in which vibriones could be distinctly seen, and yet there was no decay."

The National Dental Association of the United States of America meets August 3, 1882, in Washington, D. C.

The American Dental Association meets in Cincinnati, Ohio, the first Tuesday in August—5th—1882.

MAINE DENTAL SOCIETY.—The Maine Dental Society will hold its seventeenth annual session at Dexter, Tuesday and Wednesday, July 18 and 19, 1882, commencing Tuesday evening. A general invitation is extended to dentists and others interested to attend the meetings.

D. W. FELLOWS, *Secretary*,
Portland, Me.

NEW YORK STATE DENTAL SOCIETY.—The fourteenth annual meeting of this society was held at Albany, N. Y., May 10 and 11, 1882. The following officers were elected for the ensuing year: L. S. Straw, Newberg, President; Frank French, Rochester, Vice-President; J. Edw. Line, Rochester, Secretary; A. H. Brockway, Brooklyn, Treasurer; W. H. Atkinson, New York, Correspondent.

J. EDWARD LINE, *Secretary*.

ODONTOLOGICAL SOCIETY OF WESTERN PENNSYLVANIA.—The meeting of the above society, held in Washington, Pa., during the week from June 14–17, was very interesting. The following officers were elected: President, Dr. J. P. Thompson, of Johnstown, Pa.; Vice-President, Dr. W. E. Van Orsdel, of New Wilmington, Pa.; Secretary, Dr. H. DePuy, of Pittsburg, Pa.; Treasurer, Dr. L. DePuy, of Pittsburgh.

Board of Censors—Drs. H. W. Arthur, J. G. Templeton and Gale French.

Delegates to the State Association at Williamsport, Pa., July 25, 1882—Drs. G. G. Crow, D. P. Stewart, Gale French, M. B. Lowry and J. E. Libby.

Delegates to the American Dental Association at Cincinnati, August 1, 1882—Drs. H. W. Arthur, Gale French and C. King.

Drs. J. G. Templeton and H. DePuy, appointed to enquire into dental hygiene in our hospitals, reformatory and charitable institutions, made a report, showing thorough investigation of the subject. From their report, a worse condition, from a dental standpoint, would be hard to imagine.

The meeting closed with the retiring president's address. Adjourned to meet in Johnstown, Pa., the second Tuesday of September, 1882.